

Striped Bass Commercial Quota Increase Issue Paper

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Introduction- At the November 2010 annual meeting of the Atlantic States Marine Fisheries Commission (ASMFC), a management action was considered to increase commercial striped bass quotas by 10-30% for all jurisdictions conducting commercial fisheries. After management board debate, Addendum II to Amendment 6 of the fishery management plan (FMP) was approved without a quota increase (ASMFC 2010a). The measure had been proposed at an earlier board meeting and was subject to coast wide public hearings during the summer of 2010. Those hearings generated an overwhelming body of testimony in opposition to the increase (ASMFC 2010b). The Rhode Island delegation to ASMFC met with the DEM Director on October 28th to discuss ASMFC issues and the state's position on the striped bass matter. Considering that discussion, the briefing material provided by the ASMFC and the RI F&W agency representative ^[1], and the November 9th board discussions; the Rhode Island delegation joined the minority in support of a modest commercial quota increase. This paper summarizes the information drawn upon and the logic articulated by the RI delegation in this action.

Stock Status- The Atlantic striped bass stock was declared fully rebuilt as of 1995 after an impressive state-federal management intervention in response to a 1980's collapse (Richards and Rago 1999). Recent management history is summarized in ASMFC (2010c). An historical management perspective is given by Merriman (1941). The stock and fishery along the Atlantic coast underwent a benchmark, peer reviewed assessment in 2008. That study found, and peer reviewers concurred, that the stock was fully rebuilt, not overfished, and not subject to overfishing (NEFSC 2008). The assessment was updated using peer accepted methods by the ASMFC striped bass Technical committee (TC) in 2009 and similar findings emerged (ASMFC 2009). Most recently, the ASMFC plan review team (PRT) examined striped bass stock status, fishery performance, and management jurisdiction compliance.

[1] The author and F&W agency representative to ASMFC has been involved in striped bass management for over 20 years serving as chair of the stock assessment committee, chair of the technical committee, and chair of the management board.

That review found that all jurisdictions were in compliance with the plan and no stock deterioration had occurred sufficient to trip management triggers that would compel more conservative action (ASMFC 2010c).

Female spawning stock biomass from ASMFC (2009) is plotted in Figure 1. While biomass has declined a bit from the 2003 peak, it remains an order of magnitude above collapse levels in the 1980's and well above the fully rebuilt target. Fishing mortality rate is well below its target rate (Figure 2). Importantly, assessment model mortality based on catch is corroborated by rates estimated independently with tagging studies. It is emphasized that reference targets are precautionary levels to achieve and not critical limits to be avoided. Recruitment in the last five years has not been as strong as just prior to and following the 1995 rebuilt declaration (Figure 3). This was identified as a major area of concern by the public and management board. However, the recent moderation in recruitment is consistent with expected stock dynamics. At low stock levels, theory holds that recruitment will be low because of low parental abundance while at high stock levels, compensatory mechanisms will begin to operate as stocks reach their ecological limits (Ricker 1954). Myers (2001) found considerable empirical evidence in support of the theory. For striped bass, the relationship between recruitment and spawner biomass is well described by the Ricker, over compensatory function (Figure 4). Recruitment was very low in the 1980's when parental biomass collapsed to low levels. It rebounded as biomass reached rebuilt levels and has declined somewhat at very high biomass levels. Although recruitment should be monitored closely, it is conforming to theoretical expectations and should not be of great concern at present.

Another issue identified by the public and management board in opposing arguments was striped bass catch rate in the Gulf of Maine (GOM), the northern extent of the bass migration. The state of New Hampshire monitors bass catch rates through a volunteer angler survey and their data is plotted in Figure 5. The last two years (2008-2009) are the lowest in the time series exemplifying the GOM region concerns. I found that the NH catch rate series was significantly correlated ($r=0.71$, $P<0.01$) with striped bass recruitment at lag 3 years. Age 3 striped bass are 16-19 inches long and common along the coast. A similar correlation was found decades ago between RI floating trap landings and Chesapeake Bay juvenile bass production also at lag 3 (RIDFW-unpublished data). The RI minimum legal size at the time was 16". It is concluded that catch rate along the coast will vary in concert with recruitment, a logical outcome that is largely outside of managerial control. The recent decline in GOM catch rate is consistent with the recent recruitment pattern in the stock. While catch rate is undoubtedly important to GOM states, it may be difficult for ASMFC managers to maintain high catch rates throughout the migratory range of the stock particularly

if compensatory mechanisms have engaged because the stock has reached ecological carrying capacity.

The final concern identified in public hearings and board proceedings is the appearance of mycobacteriosis in striped bass (Gauthier et al. 2008). Mycobacteriosis is a dermal and visceral disease caused by bacteria of the genus *Mycobacterium*. It was first observed in Chesapeake Bay striped bass in 1997 and has since increased in occurrence. Mycobacteriosis has not been observed in the other Atlantic population components (Hudson and Delaware rivers). The disease is chronic with mortality cryptic so that losses are unobservable. It has increased the natural mortality rate of bass but the magnitude and ultimate stock implications remain uncertain (Jiang et al. 2007, Gauthier et al. 2008). The appearance of this disease is clearly worrisome but not yet catastrophic. It should be monitored and researched further. It could be part of the compensatory response by the population to high density or climate change. The current stock assessment assumes a constant natural mortality rate. Future assessments should explore an increase which may change the perception of the stock relative to reference points.

Statement of Problem- Unlike other ASMFC species such as summer flounder, scup and seabass; the striped bass fishery is not managed to annually specified catch limits (ACL) with attendant accountability measures (AM) to rectify overages. Further, no explicit commercial and recreational sharing formula is in effect. States commercial quotas are fixed at the mean 1972-1979 landings. Although regular stock assessments are done, they are not used to modify harvest in accordance with biomass. The recreational fishery is managed under a fixed size and possession limit format (2 fish at 28"). The outcome of this paradigm is that recreational landings vary as a function of stock abundance and fishing effort while commercial landings are static. Under Amendment 5 and 6 rules, the recreational fishery has grown to dominate. For the last 5 years (2005-2009), recreational fishing activity has accounted for 79% of the stock removals (Figure 6). Commercial activities have accounted for 21%. Although some publicized illegal commercial fishing influenced public opposition to the quota increase, tagging studies do not support an argument that there is widespread undocumented commercial harvest (Figure 2). Tag mortality estimation methods account for all sources of mortality and do not require full catch accounting to generate unbiased estimates.

Striped bass have supported fisheries in New England including Rhode Island since colonial times (Philbrick 2006). Historical information documents large fluctuations in abundance (Bigelow and Schroeder 1953, Merriman 1941). The RI commercial fishery is prosecuted mainly by rod and reel and floating fish traps (Olsen and Stevenson 1975). During the 1980's stock collapse and commitment to rebuilding, both commercial and recreational fisheries were at low levels (Figure

7). However when transition (1990) and fully rebuilt (1995) management programs were approved, recreational catch tracked stock abundance and grew far beyond commercial. Since the implementation of Amendment 6 in 2003, the RI commercial fishery has been steady at 100 tons while the recreational fishery has fluctuated between 300 and 700 tons. The commercial fishery is capped, has not enjoyed the growth of the recreational, and is not providing the economic benefits available if fishing targets were fully realized (Figure 2).

The Proposed Solution- Addendum II to Amendment 6 would have provided for a modest increase in commercial quotas. Board discussion and motions on November 9th clarified that the range would have been 10-30%. Considering the 2009 coastwide losses, a 10-30% increase in commercial landings would have resulted in a 2-6% increase in total stock removals. If increased commercial landings replaced commercial discards, the increase would have been smaller. Substitution of landed catch for discarded catch is a highly desirable and an expected outcome of quota increases. The ASMFC technical committee advised that the proposal would have an insignificant impact on fishing mortality rate and spawning biomass (ASMFC 2010b).

ASMFC Charter and FMP Guidance- Section 6 of the Commission's charter specifies seven general standards for FMPs. They emphasize long-term sustainability, use of best available science, minimization of waste, and fair and equitable allocations. The governing ASMFC striped bass management program is contained in Amendment 6 to the striped bass FMP. The FMP goal and supporting objectives are:

“To perpetuate, through cooperative interstate fishery management, migratory stocks of striped bass; to allow commercial and recreational fisheries consistent with the long-term maintenance of a broad age structure, a self-sustaining spawning stock; and also to provide for the restoration and maintenance of their essential habitat.”

- *Manage striped bass fisheries under a control rule designed to maintain stock size at or above the target female spawning stock biomass level and a level of fishing mortality at or below the target exploitation rate.*
- *Manage fishing mortality to maintain an age structure that provides adequate spawning potential to sustain long-term abundance of striped bass populations.*
- *Provide a management plan that strives, to the extent practical, to maintain coast wide consistency of implemented measures, while allowing the States defined flexibility to implement alternative strategies that accomplish the objectives of the FMP.*

- *Foster quality and economically viable recreational, for-hire, and commercial fisheries.*
- *Maximize cost effectiveness of current information gathering and prioritize state obligations in order to minimize costs of monitoring and management.*
- *Adopt a long-term management regime that minimizes or eliminates the need to make annual changes or modifications to management measures.*
- *Establish a fishing mortality target that will result in a net increase in the abundance (pounds) of age 15 and older striped bass in the population, relative to the 2000 estimate.*

Rhode Island Statutory Guidance- Rhode Island general law (RIGL) provides the Director of the Department of Environmental Management with general authority over the fish and wildlife resources of the state (RIGL 20-1-2). The DEM director is ex officio commissioner to ASMFC (RIGL 20-8-3) and is committed to participation in the ASMFC through RIGL 20-8-1 and cooperation in ASMFC management programs in RIGL 20-8-7. Cooperation in and complementation of federal projects is also called for in RIGL 20-9-3 and 20-2.1-9(2iC).

Other findings and matters of law provided by the Rhode Island General Assembly relevant to the striped bass quota matter include: the recognition and protection of the right to engage in commercial fishing (RIGL 20-2.1-1(5), 20-3.2-2(d)), recognition that marine fisheries support commercial operations and recreational activities, both of which are significant contributors to the state economy (RIGL 20-3.2-2)), a provision in licensing for the opportunity to fish commercially (RIGL 20-2.1-2(2)), the preservation and enhancement of full-time commercial fishing as a way of life (RIGL 20-2.1-2(5)), requirement to consider the effects of licensing on the economics of the commercial fishery (RIGL 20-2.1-9(2iiC)), the requirement to achieve optimum yield from fisheries while preventing overfishing (RGL 20-2.1-9(2ivA)), the requirement to minimize bycatch and bycatch loss (RGL 20-2.1-9(2ivG)), and the authority to differentiate between the level of access provided to license holders based on past performance and need (RIGL 20-2.1-9(4i)).

Conclusion and Basis for Position- The striped bass quota matter centered on a balancing of economic benefit to commercial fishers with risk to the resource. The ASMFC charter and management plan clearly envisions this tension with goals to prevent overfishing but to provide for viable, sustainable fisheries based on good science. Rhode Island general law is parallel, clearly identifying commercial fishing as a desirable economic activity that should be supported provided that overfishing is prevented and resources are managed sustainably. It is well known

that the overall commercial fishery in Rhode Island is in economic distress, partly due to low quotas and catch limits.

While there is long-term concern for the striped bass resource from weakening recruitment and mycobacteriosis, recruitment dynamics are currently within expected norms and disease mortality is not catastrophic. The stock is well above its biomass target and fishing mortality is below its target. There is clearly room for modest fishery expansion. An extensive monitoring/assessment program with biological reference triggers will detect problems and compel corrective actions should they occur. A very conservative management program to date has fully rebuilt the stock without achieving the full yield and economic benefits possible. The proposed increase in commercial quota was modest and would likely be undetectable in stock assessments particularly if additional landings reduce commercial discards. In view of the information, the RI delegation felt that supporting a commercial quota increase was a sound position consistent with ASMFC FMP objectives and Rhode Island fishery law. The need of the commercial industry for equity and economic opportunity is clear while the risk to the resource is low at this time.

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Figure 1- Spawning Stock Biomass of Atlantic Striped Bass from AFMSC 2009 Stock Assessment

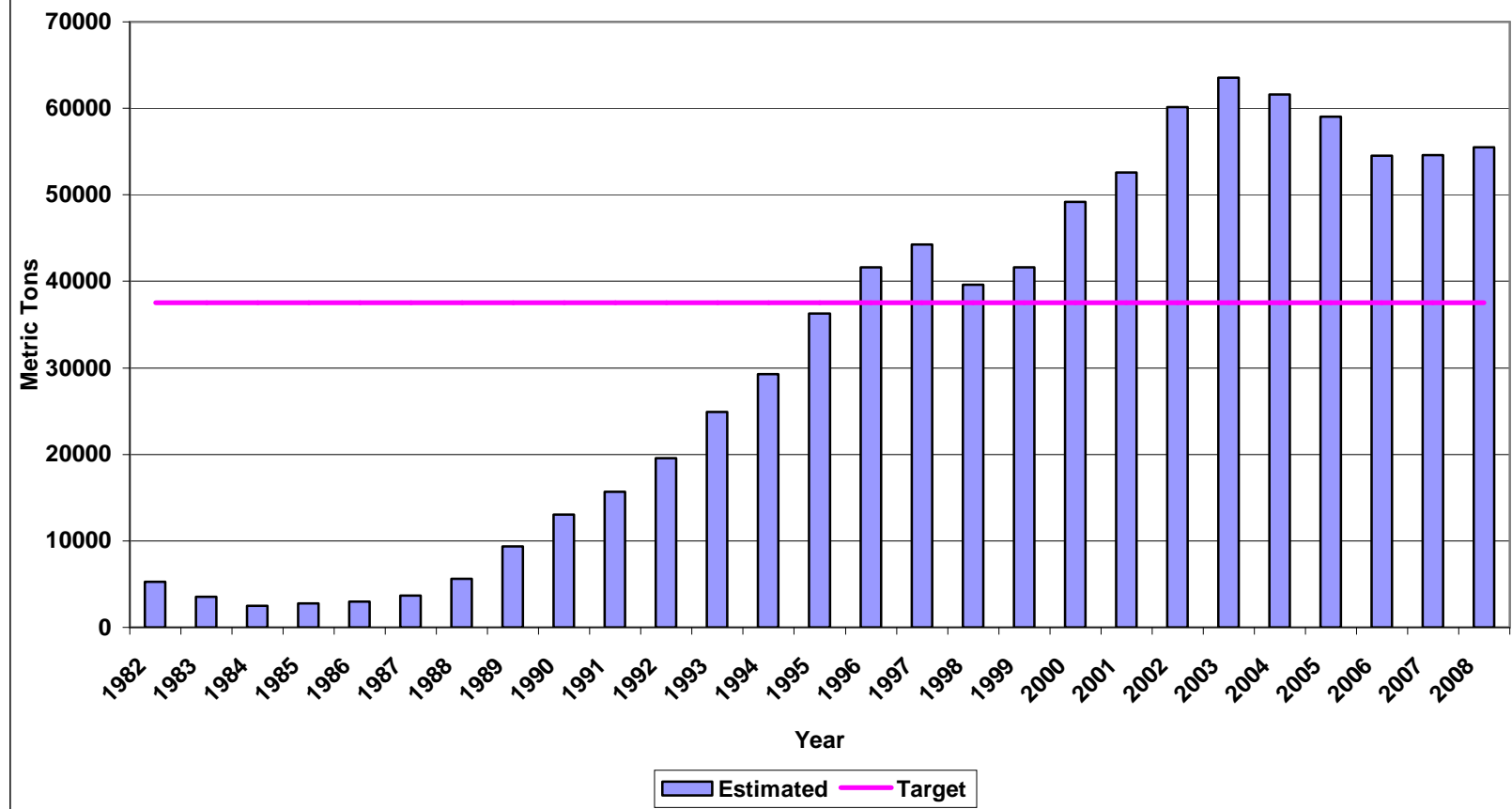


Figure 2- Atlantic Coast Striped Bass Fishing Mortality Rate from ASMFC 2009 Assessment

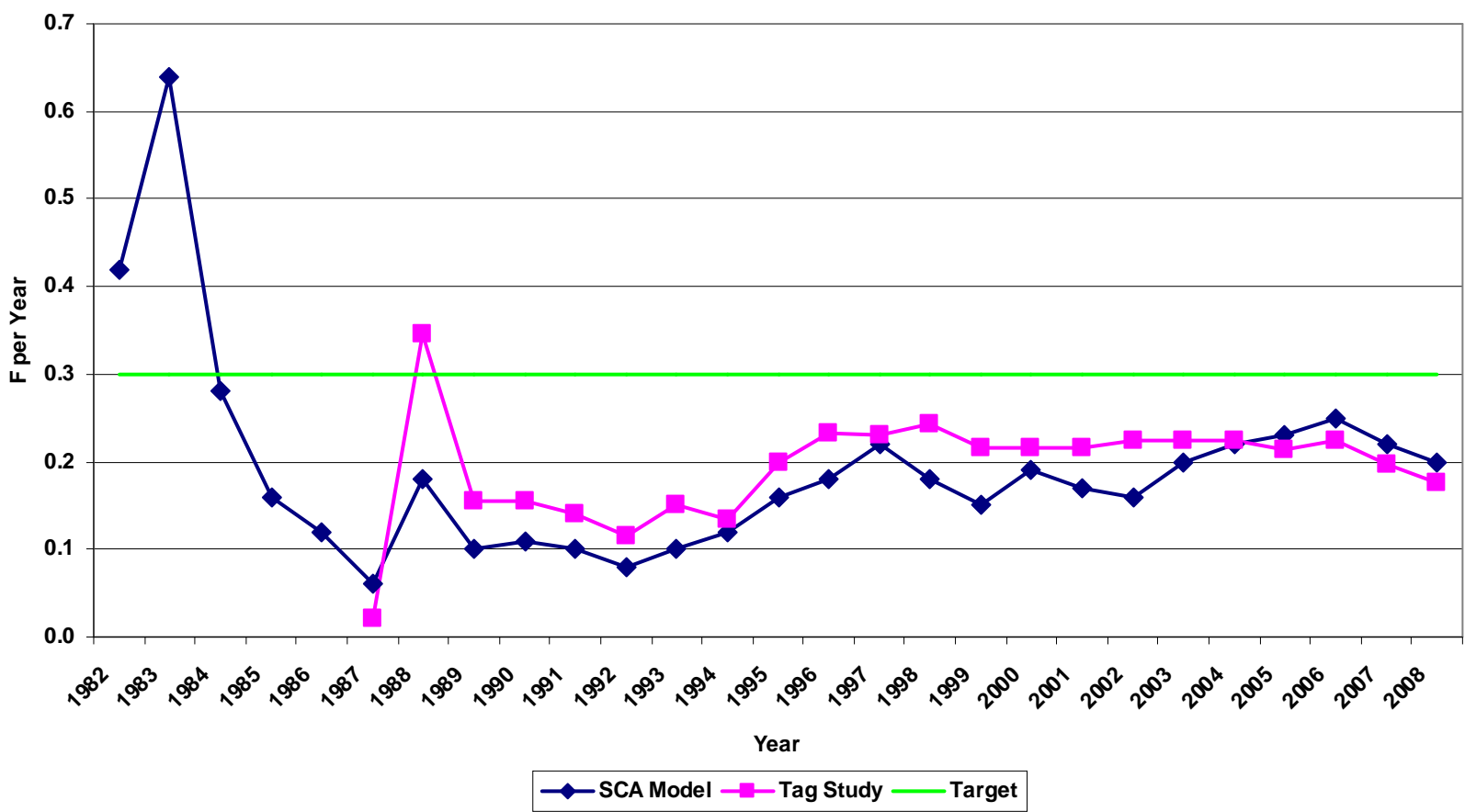


Figure 3- Recruitment in the Atlantic Coast Striped Bass from the 2009 ASMFC Assessment

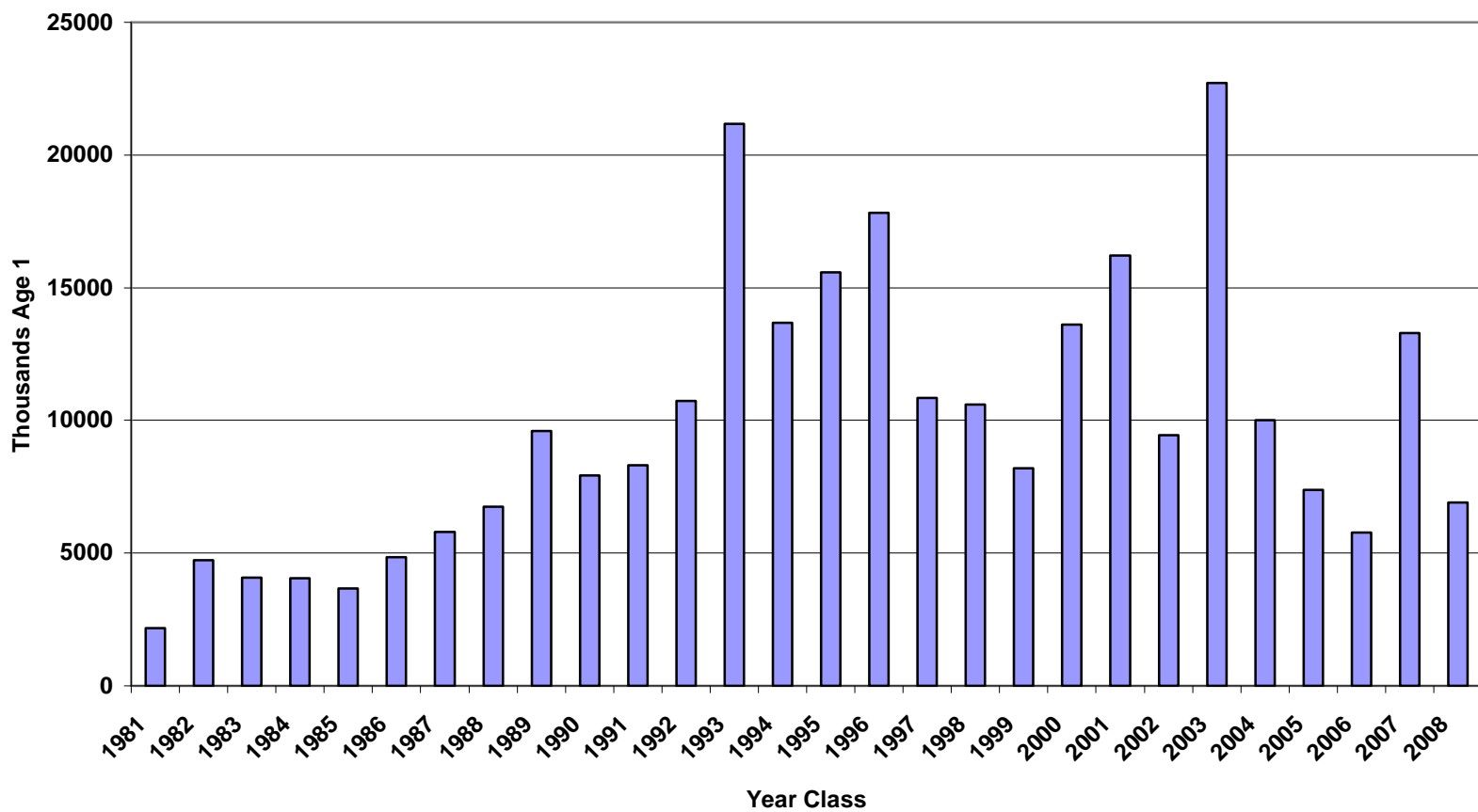


Figure 4- Striped Bass Stock and Recruitment 1982-2008 from SCA Model with Fitted Ricker Curve.
Red Cohorts Realized Since Amendment 6 Reference Points.

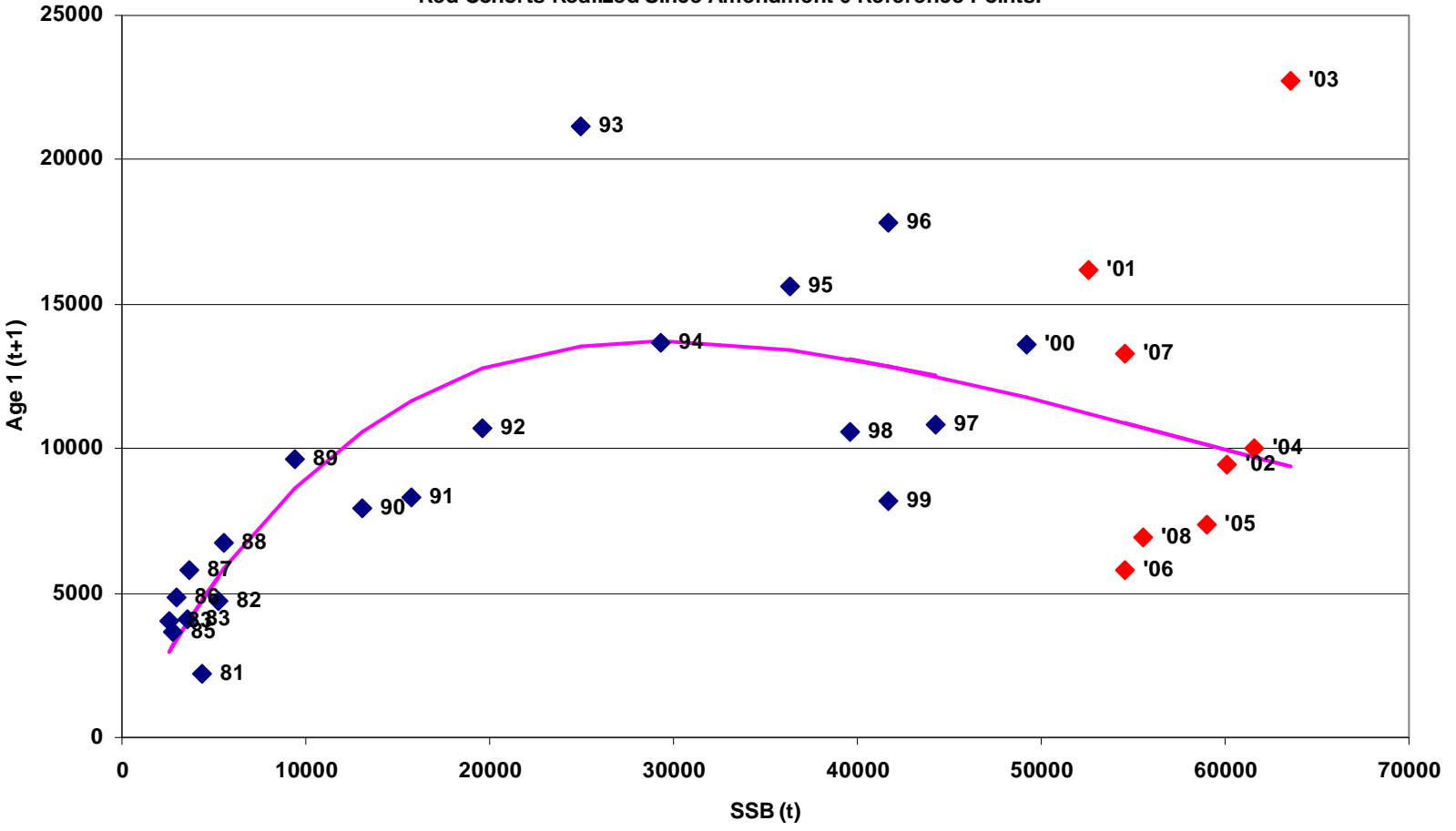


Figure 5- Catch Rate of Striped Bass in the New Hampshire Vounteer Angler Survey

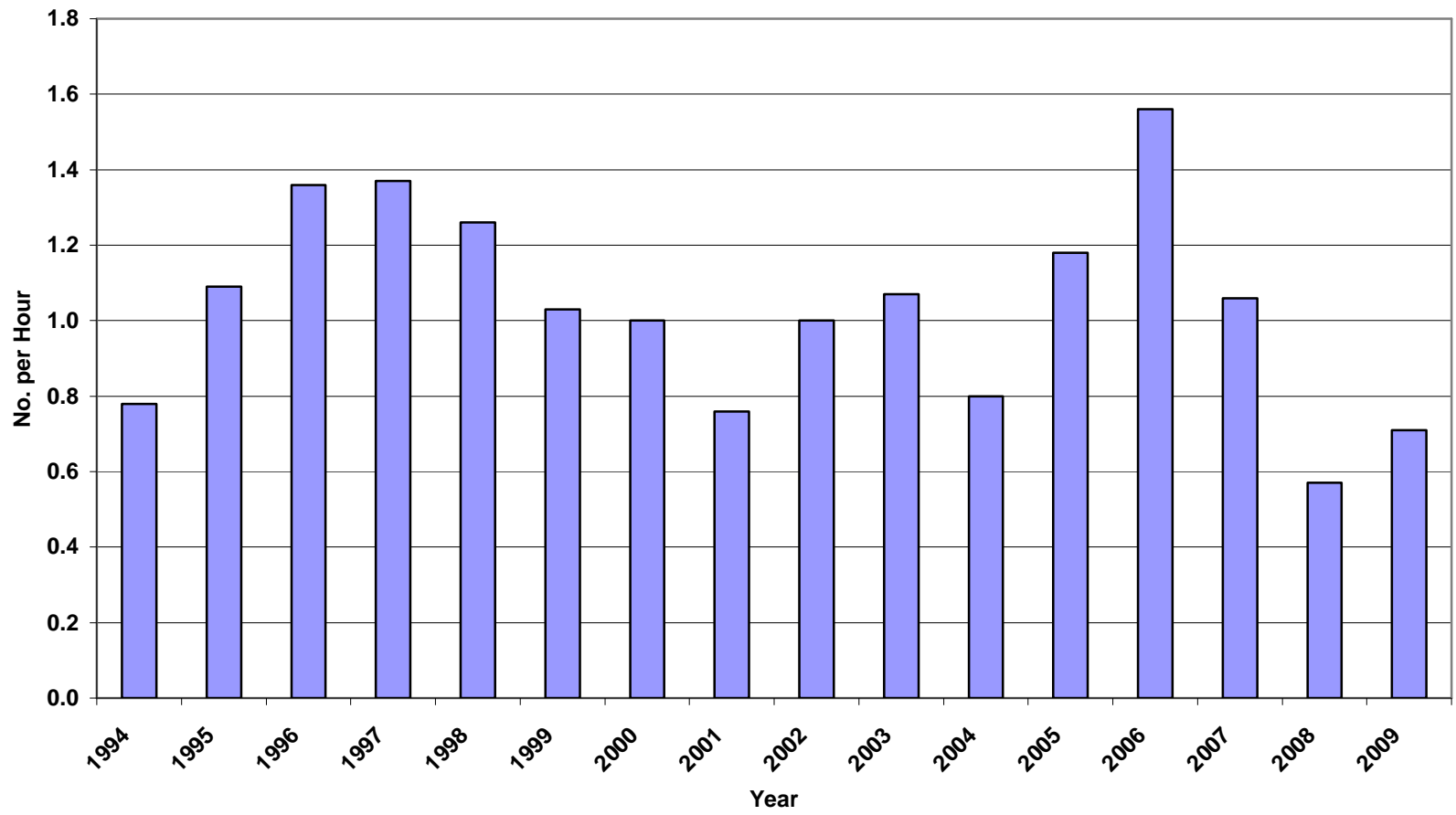


Figure 6- Atlantic Coast Striped Bass Fishery Landings and Discards by Category, 2005-2009

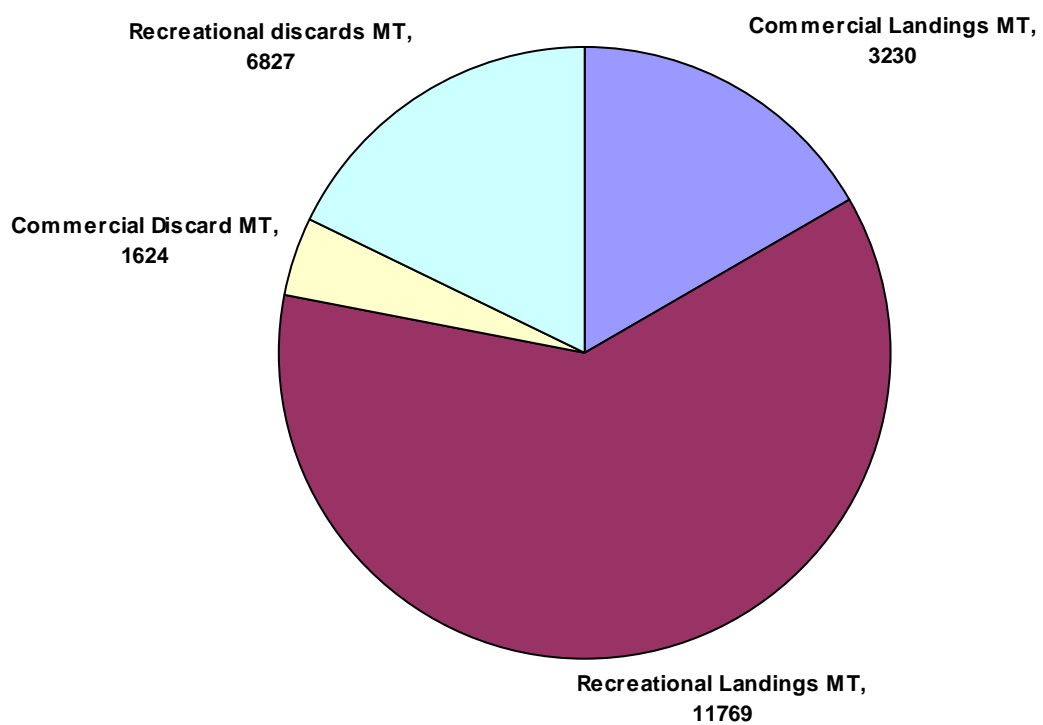


Figure 7- RI Commercial and Recreational Striped Bass Landings, 1981-2010

